

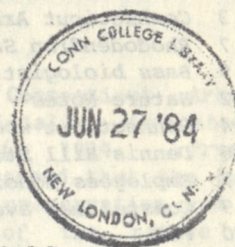
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# Citizens' Bulletin

Volume 11 Number 10 June 1984 \$5/yr.

The Connecticut Department of Environmental Protection

## The Connecticut Arboretum





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Cover Photo: The Laurel Walk at the Connecticut Arboretum; Leslie Bieber

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## The "cold water" danger

If you are involved in a ship casualty and forced to abandon ship, your survival procedure should be preplanned, thereby increasing your chances for a successful rescue. Here are some sound pointers for you to remember in a situation of this type:

1. Put on as much warm clothing as possible, making sure to cover your head, neck, hands, and feet.

2. Avoid entering the water if possible. If davit launched survival craft are not available, use overside ladders, or if necessary lower yourself by means of a rope or fire hose.

3. Unless it is unavoidable do not jump from higher than five meters (16.4 feet) into the water. Try to minimize the shock of sudden cold immersion. Rather than jumping into the cold water, try to lower yourself gradually. On occasion it may be necessary to jump; if so you should keep your elbows at your sides, cover your nose and mouth with one hand, holding the wrist or elbow firmly with the other hand.

4. Once in the water, whether accidentally or by ship abandonment, orient yourself and try to locate the ship, lifeboat, other survivors or other floating objects. In cold water you may experience violent

shivering and great pain. These are natural body reflexes that are not dangerous. You do, however, need to take action as quickly as possible before you lose full use of your hands; button up clothing, turn on signal lights, locate whistle, etc.

5. While afloat in the water, do not attempt to swim unless it is to reach a nearby craft, a fellow survivor, or a floating object on which you can lean or climb. Unnecessary swimming will pump out any warm water between your body and the layers of clothing, thereby increasing the rate of body heat loss. In addition, unnecessary movement of your arms and legs send warm blood from the inner core to the outer layer of the body. This results in a very rapid heat loss. Hence it is most important to remain as still as possible in the water, however painful it may be. Remember pain will not kill you, but heat loss will!

6. The body position you assume in the water is also very important in conserving heat. Float as still as possible with your legs together, elbows close to your side and arms folded across the front of your lifejacket. This position minimizes the exposure of the body surfaces to the cold water. Try to keep your head and neck out of the water. Another heat conserving position is to huddle close to one or more persons afloat, making as much body contact as possible. You must be wearing a life vest to be able to hold these positions in the water. Do not use "drownproofing" in cold water! "Drownproofing" is a technique whereby you relax in the water and allow your head to submerge between breaths. It is an energy saving procedure to use in warm water when you are not wearing a life vest. However, the head and neck are high heat loss areas. If you are not wearing a life jacket tread water only as much as necessary to keep your head out of the water.

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# Alive and growing

## The Connecticut Arboretum

### Arboretum

Tucked away amid the urban-suburban sprawl that characterizes much of New London and Waterford is a 415-acre open space gem. The Connecticut Arboretum at Connecticut College has preserved valuable natural lands in the area since its inception in 1931.

### Early Years

Connecticut College for Women was founded in New London in 1911; land acquired for the campus included the John R. Bolles farm. The farm, which had been in the Bolles family since 1733, contained a ledgy parcel of land which extended into the town of Waterford. This piece was dominated by a magnificent stand of old hemlocks which had been carefully cultivated by the Bolles family. It was given to the college by Anna Hempstead Branch, a Bolles descendent, with the stipulation that the tract be used as "a park for the use and engagement of said college and their friends." The tract was named Bolleswood in honor of the family.

By 1931 the college had about 64 acres of undeveloped land which included a lake, a pine plantation, the hemlock grove, and assorted bogs, swamps, hedges, and woodlands. At the suggestion of Garden Club member Mrs. Charles Cutler, Connecticut College president Katherine Blunt initiated the establishment of the Arboretum. Noted landscape architect A.F. Brinkerhoff was

retained to develop plans for the project. At the same time, President Blunt was busily looking for a new chairman of the Botany Department, hoping that the Arboretum would attract top candidates. Dr. George Avery was hired that summer and immediately began to convert Brinkerhoff's plans into reality.

Dr. Avery first established an Advisory Committee to help oversee the Arboretum's development. Shortly afterward the Connecticut Arboretum Association was formed. Membership consisted of individuals and organizations who wished to contribute to the Arboretum project. This public support is unusual among horticultural institutions in this country, which have generally been endowed by a single wealthy patron.

The Board of the Federated Garden Clubs and the Connecticut Daughters of the American Revolution were prime movers in the Arboretum's first major piece of landscape construction. Miss Katherine Matthies, who was destined to become one of the most generous of the Arboretum's friends, convinced the DAR to dedicate \$2,000 towards the first feature of the Brinkerhoff plan, an entrance and handsome laurel walkway down to the lake. The Washington Entrance, named to commemorate the 200th anniversary of George Washington's birth, was constructed with labor provided by the New London Unemployment Relief Committee.

The Connecticut Arboretum was officially dedicated on October 6, 1934. President Blunt stressed that the purpose was "the preservation and propagation of the native plant life of Connecticut, and the scientific arrangement of that plant life for the purposes of study." Thus the Arboretum was established with an emphasis on native flora that persists today.

More gifts and donations characterized the early years of the Arboretum. The Outdoor Theater and Buck Lodge were made possible by the Buck Family of Chicago. In 1938 a great hurricane struck New England and wreaked havoc among the Arboretum collections. One hundred and twelve of the old hemlocks in the Bolleswood were destroyed, as was a massive pine in the outdoor theater and an oak by the lodge. The clean-up and replacement of the damage took almost all of the Arboretum's resources for several years.

### Growth and Development

Between 1936 and 1975, the Arboretum's holdings increased from 64 to 415 acres. The acquisition process was not always easy. Several times a last-minute fund-raising drive was launched to save a valuable piece of open-space land.

In 1944, Dr. Avery relinquished his post at the Arboretum to become Director of the Brooklyn Botanical Garden. He was replaced by Dr. Richard Goodwin. A true believer in conservation, Dr. Goodwin even-



tually became the first president of The Nature Conservancy (CB July/August 1983).

Dr. Avery and Dr. Goodwin always had their ears open for news of pending land sales in the area of the Arboretum. Sometimes lengthy negotiations were required to secure a property; other times land was given to the Arboretum to honor an individual. Efforts were made to acquire as much connecting land around the college as possible.

One of the most noteworthy purchases made by the Arboretum was that of Mamacoke Island. Mamacoke is not really an island except during unusually high tides; it is a forty-acre dome of rock connected to the mainland by a small salt marsh. The land was mentioned in land records as being mowed in 1645, the first year of colonial settlement. The property was purchased in 1944 by the Meritt-Chapman and Scott Corporation, a marine construction company.

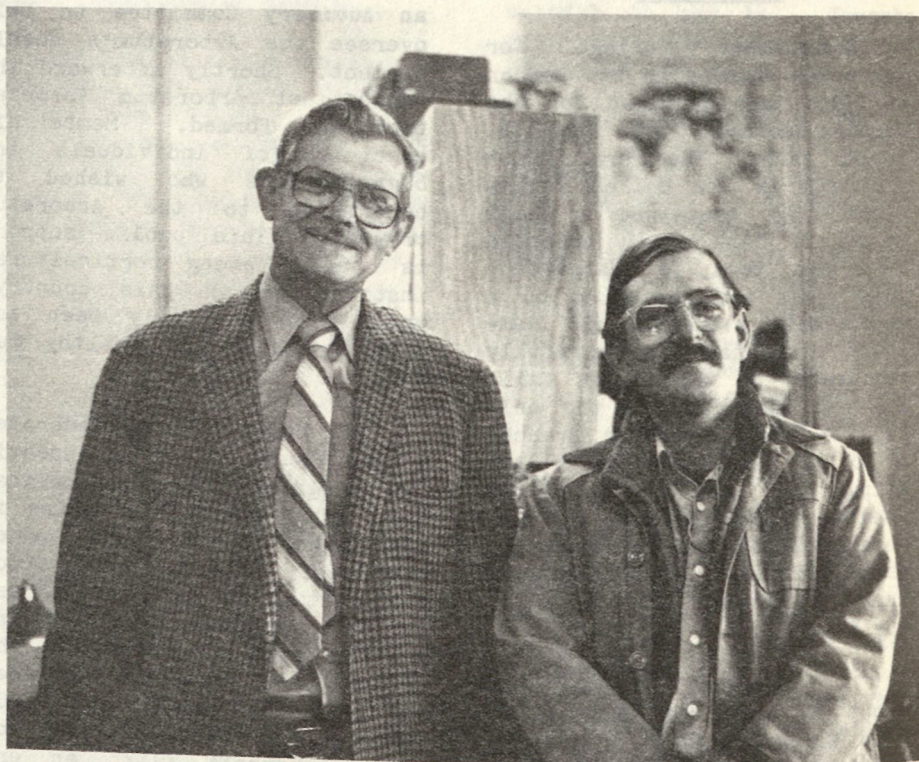
At the time of the Mamacoke purchase, the Connecticut Forest and Park Association and many other citizens were interested in having the state procure the property for use as a park. The Corporation, however, was not willing to negotiate the point. In 1953 the company had a change of heart and the Arboretum entered into discussions which resulted in a purchase option. A clarion call for money was sounded and within eight months 257 individuals and 29 organizations raised the \$15,000 necessary to consummate the transaction. An additional \$1,189 was committed to an endowment fund for the management of the property.

#### The Arboretum Today

Dr. Goodwin retired as Director of the Arboretum in 1965, and he was succeeded by Dr. William Niering. Today Dr. Niering and his assistant Glenn Dreyer are in charge of tend-



*This ravine is just one of the types of habitat found in the Bolleswood Natural Area.*



*Dr. William Niering, left, Director of the Arboretum, and Glenn Dreyer, Assistant Director.*

ing the various plant collections, research areas, and natural lands that make up the Arboretum. Students in the Botany and Environmental Stud-

ies programs have instant access to field laboratories, analyzing both plant communities and habitat types. Connecticut College is one of the few edu-



ational institutions to have so large a natural tract adjacent to the campus.

The Arboretum also provides recreation for students and the community at large. It is a favorite spot for a casual stroll, skating in the winter, or jogging on specially-designated paths. In addition Buck Lodge has been used for Girl Scout camps, Garden Club meetings, and student functions. Outside the cultivated portion of the property the College riding program uses bridle trails leading out from a stable next to Arboretum land.

Public support continues to be a crucial factor in the Arboretum's success. Arboretum Association members, which include individuals, organizations, and garden clubs, have kept the program alive and growing through dues and special contributions. In return they receive all bulletins and are provided with special lectures and tours. The garden clubs are eligible to receive free nursery stock for civic plantings.

Bulletins on different subjects are published periodically by the Arboretum. Some are based on research projects carried out by students and faculty. Others are of general interest, like the "Garden Guide to Woody Plants." A complete listing of available bulletins and prices is featured in this month's "FYI" column.

The Arboretum serves as host for another popular environmental institution, the Thames Science Center. The Center leases two acres of property on which it has its interpretive headquarters (these are currently undergoing major expansion). The center brings a varied environmental education program to the community, as well as serving as a training facility for Connecticut College students. A nature trail has been developed through a small portion of the adjacent woodland.

Of course the main focus of the Arboretum is the plants. It has historically specialized in flora native to Connecticut and the Northeast. In the cultivated portion of the property grow beautiful stands of azalea, viburnum, oak, hawthorn, holly, birch, and much more. The Laurel Walk is as beautiful as ever. Two small wildflower gardens are also maintained.

#### Research Programs

The variety of native plants and habitats in the Arboretum make it a prime area for research by faculty and students. As early as 1938 Dr. Avery undertook a study of the hemlocks destroyed by the hurricane. Analysis of growth rings revealed that the trees ranged from 106 to 171 years of age. The rings also showed great consistency in width although the trees were growing in a variety of soil types.

Dr. Goodwin provided the real energy to establish a research program at the Arboretum. A conference on the natural history of Connecticut was hosted by the Arboretum in 1952. Sponsored by the state's Geological and Natural History Survey, the conference brought together many of the state's eminent ecologists. The gathering spawned recommendations which were to influence the Arboretum's development.

The first important idea was to establish a system of natural area preserves to protect Connecticut's natural diversity; the second was to institute long-range ecological studies of those preserves. These decisions gave the trustees of the College the impetus to designate the Bolleswood, and later Mamacoke Island, as Natural Areas.

Research on the Bolleswood began in 1952 when students surveyed and marked four permanent transects across the property. A variety of habitats, such as lake shore, bog, swamp, rock outcrops and ledge, forests, and fields were repre-

sented in the sections. The students recorded data on the location, diameter, height, and identification of trees, location and number of stems of shrub species, herb and seedling cover, and forest canopy density. Soil types, angles of slopes, and presence of boulders or outcrops were also noted. This information is being updated every ten years, providing an accurate picture of natural plant succession processes.

In addition to the transect data, other natural resource information has been gathered in the natural areas. Nine surveys of breeding birds have been conducted in the Bolleswood since 1953, documenting the shift from open-field and old-forest species to those typical of the suburbs. Data on winter bird population and small mammals have also been obtained and published.

Mamacoke has proven to be a choice research site as well. The salt marsh is unique in Connecticut because it was never ditched for mosquito control. Vegetation mapping has allowed for study of changes taking place in the zonation of plant communities. Archaeological investigation of the upland revealed evidence of early Indian settlement.

The Arboretum staff have been in the forefront of wetlands research in the state. The 1956 filling of a large salt marsh in Sherwood Island State Park drew attention to the destruction of the state's tidal marshes. In 1961 the Arboretum produced a bulletin entitled "Connecticut's Coastal Marshes: A Vanishing Resource" which detailed the problem and laid out a program for coastal wetland protection. The next year the staff helped conduct an inventory of the state's tidal marshes.

Students and faculty members investigated many aspects of salt marsh dynamics. Vegetation mapping, invertebrate population counting, tidal flush-



ing, and carbon-dating of plant communities were among the studies undertaken. Several bulletins dealt with these issues. Fresh-water wetlands were not ignored either. "Preserving our Fresh Water Wetlands" was published in 1970 to promote the importance of protecting these valuable areas. Drs. Niering and Goodwin also prepared a guide to inland wetland plants at the request of the DEP Commissioner. The booklet continues to be a "best seller."

One research project with widespread application is that of vegetation management through selective herbicide application. In the years following World War II many highway departments sprayed large quantities of herbicides on the roadsides to suppress plant growth. The resulting "brown outs" caused great concern among members of the state's garden clubs, many of whom also belonged to the Arboretum Association. In response to this, Arboretum staff began to work with the Federated Garden Clubs of Connecticut and the Connecticut Forest and Parks Association to develop ecologically sound roadside management techniques. The roadside spraying program has since been greatly improved.

In a related vein the Arboretum established a demonstration right-of-way area under a power line on the property. A cooperative venture arose with Connecticut Light and Power to experiment with very selective spray techniques. The result has been that Northeast Utilities has written this management practice into their basic specifications. By removing only woody growth, utilities can keep their power lines clear and still provide an attractive and productive natural area.

Along the same line the Arboretum has developed a naturalistic landscape area. By selectively root killing invading species such as black cher-

ry, the staff have been able to keep the plot in an attractive semi-open state with very little maintenance. Dr. Niering has used the natural technique on his own property with great success. The results can be seen in the bulletin "Energy Conservation on the Home Grounds: The Role of Naturalistic Landscaping."

Fire is often perceived as a destructive force in nature. Arboretum research, however, has shown that prescribed burning can enhance natural areas in a number of ways. A program was developed under a National Science Foundation grant to study exactly what effect burning had on vegetation dynamics. Plots were established both in the Arboretum and Pachaug State Forest and represented forest and old-field habitats. Dr. Niering praised State Forester Robert Garrepy, who previously managed Pachaug, and Ron Kramer, DEP Regional Fire Control Officer, for their help with the project. All burning has been conducted by DEP personnel.

The burned plots have shown how beneficial fire can be in maintaining habitats. In the field plots, burned areas showed taller and more vigorous grass species than control areas. Forested areas became more open and parklike when burning reduced leaf litter and shrubby undergrowth. Oaks and certain pines proved to be quite resistant to these fires. The results all point to controlled burning as a possible forest and wildlife habitat management tool in the future.

An unusual experiment was conducted over the past decade by the Arboretum and Pfizer, Inc., a major manufacturer of pharmaceutical products. A by-product of Pfizer's manufacturing process is mycelium, the vegetative body of a fungus. The company was working to find a means of recycling rather than disposing of this substance. Through the establishment of test plots on the college campus and at a demonstra-

tion farm in Stonington, it was determined that mycelium was an excellent soil additive and could decrease dependence on commercial fertilizers.

The Connecticut Arboretum is indeed a unique place in the state, serving as park, natural area, classroom, and laboratory. If you are looking for a spot for a pleasant day's outing, consider making a stop at Connecticut College in New London. As you stroll down the Laurel Walk into the Arboretum, you'll be transported away from the everyday hustle and bustle and into a serene pocket of nature.

Membership in the Arboretum Association is open to all individuals and organizations. Members receive publications and enjoy other privileges, including notice of special field trips and lectures and the use of Arboretum facilities. For more information contact The Connecticut Arboretum, Dr. William A. Niering, Director, Connecticut College, New London, CT 06320.





# A place for rare plants

## Pachaug State Forest Rhododendron Sanctuary

By Margot Callahan

On your list of Connecticut's subtler pleasures you might want to include the Pachaug State Forest's Rhododendron Sanctuary. This little piece of our largest State Forest offers the chance to see three or four acres of one of the state's rare plants, great rhododendron -- though catching the plant in flower requires careful timing.

Be warned that a tour of the Rhododendron Sanctuary definitely falls among life's quiet pleasures -- at about the level of the purr of the hordes of big fuzzy bees which pollinate the area's blossoms on a sunny day. So you'll probably want to include some of the Pachaug Forest's other attractions if you're planning a visit from any distance (see list that follows). Or you may want to see the sanctuary as a part of a longer hike.

Rhododendron maximum is our largest native member of the evergreen heath family -- which includes cultivated rhododendrons, mountain laurel, azaleas, blueberries, and cranberries as well as a host of lesser known species. In some areas this thicket-forming shrub or small tree grows to heights of 30 to 40 feet. Its leathery evergreen leaves are

three to eight inches long, somewhat hairy, and rolled at the edges. According to the books, the large flowers generally range from pink to purple in color.

The Pachaug Forest Sanctuary's great rhododendron grows to a maximum of about 16 feet high, according to Forest Manager Michael Roberts, and its flowers are white with pink edges. (State Forester Robert Garrepy theorizes that either the low light in the forest or hybridization of the plant, along the edge of its range, causes the color and size variations.)

Connecticut has no official "endangered" classification for plants. Native Rhododendron maximum, or great rhododendron, in its natural habitat is rare, however, according to Leslie J. Mehrhoff, senior biologist with DEP's Natural Resource Center and manager of the State's rare plant program. The sanctuary area, Mehrhoff points out, gives the public "a state-designated area for looking," while its slightly raised half-mile walkway not only makes access easy but also protects the cedar swamp site so that visitors "won't put undue pressure on the rest of the area." The trail was built by

the Young Adult Conservation Corps in 1977.

Great rhododendron occurs commonly in more southern areas such as the Alleghenies and West Virginia, where it is frequently as luxuriant and showy as Connecticut's mountain laurel. It turns up in "pockets" all over New England, Mehrhoff says, some of them as far north as Mount Chocorua in New Hampshire and Springvale, Maine.

Most of the current populations known in Connecticut are in New London County, Mehrhoff says, but there are historic reports of it in Litchfield County. He is currently checking property records to track down a historic record of the plant in Tolland.

Tracking the great rhododendron can be tricky, says Mehrhoff, since cultivated varieties are common and similar to the wild native plants. "If there's one plant, it's probably not native but rather an 'escape,'" he says. "Decisions call for a careful look at the flowers and some subjective judgements, based on comparing the areas where it's native to our places."

The question of whether the Pachaug Forest sanctuary was





A summer day in the Rhododendron Sanctuary.

planted by the old Civilian Conservation Corps has come up, but old records from Voluntown in the 1890s refer to "the edge of the rhododendron swamp," and Mehrhoff is satisfied that nature, not the CCC, is responsible for this patch of great rhododendron.

Seeing the sanctuary in bloom calls for careful timing. Blossoms last for less

than two weeks, usually appearing from about July 4th through July 10th. Pachaug Forest Headquarters personnel maintain the area and keep tabs on its progress and will give would-be visitors an idea of when they may be able to see the area in full flower (call 376-4075).

But Roberts and the rest of his Forest Headquarters staff don't make any promises. As

with mountain laurel, the rhododendron's quality varies from season to season. Last year was a good year; one year there was only one blossom. As far as beauty goes, the Forest Headquarters staff seems to be pretty much in agreement that even in its best seasons the rhododendron does not rival the beauties of the State's mountain laurel.

#### TIPTOE THROUGH THE RHODODENDRON: HIKES IN THE AREA

A swing through the Rhododendron Sanctuary, along with a trek to the top of the 441-foot Mount Misery, is included on the routes of both the blue-blazed Nehantic trail (14 miles) and the Pachaug trail (29.5 miles).

Neither the rhododendron nor the mountaintop are restricted to the relentlessly hardy, however. The raised half-mile trail through the sanctuary calls for "sensible" shoes but should otherwise be manageable even for those who seldom leave the sidewalk. The nearby Mount Misery overlook, which offers a good view of the surrounding area, can be reached by hiking trail or by car -- it's about a 600-foot walk from a parking area.

To get to the Rhododendron Sanctuary, from Route 138 in Voluntown take Route 49 north to the Pachaug Forest entrance. Follow the road past Forest Headquarters and past the turnoff for the CCC Youth Camping Area. The entrance to the sanctuary is across the road from the Mount Misery camping area and is marked with a sign.

#### PACHAUG FOREST FACTS

\* With 24,000 acres in six towns (Voluntown, Griswold, Sterling, North Stonington, Plainfield, and Preston), the Pachaug is the largest forest in Connecticut's State Forest system.

\* Sixty percent of the Town of Voluntown is State Forest.



# A night in the life...

## Fisheries Biologist does different kind of fishing

*By Bob Jacobs, Fisheries Biologist, Bureau of Fisheries*

It is 1:00 a.m. The fog rolls in thick over the glass calm waters of Lake Lillinonah, causing a feeling of eerie aloneness while enhancing the chill of the November night air. Suddenly, a faint humming sound catches your attention and you turn to see what appear to be two great glaring eyes penetrating the blackness. As the beast approaches the hum becomes a roar and you realize that it is not a leviathan from the deep but, perhaps, an alien space ship on some mysterious reconnaissance mission. Closer inspection reveals two dark figures staring intently into the water. Dressed from head to toe in rubber garments, they wield what appear to be 10-foot spears.

Aliens? Monsters? No . . . just Connecticut state fishery biologists on a typical night of electrofishing for the Statewide Largemouth Bass Stock Assessment Project. The largemouth bass is the country's most popular gamefish and the northeast (traditionally salmonid territory) has experienced an explosion of interest in bass fishing in the past 15 years or so. Because of this recent interest and subsequent intensified fishing pressure on

the bass, the Connecticut State Fisheries Bureau began a five-year research project (funded by Dingell-Johnson monies) in the fall of 1980. The purpose of the study is to collect baseline data on largemouth bass populations in a cross section of the state's lakes and ponds, the ultimate goal being to develop a statewide management plan for the species.

Six lakes were initially chosen for study due to their bass fishing reputations and diverse natures. East Twin Lake in Salisbury is a deep, clear lake with a rocky bottom which brings trout more to mind than bass (it does offer good kokanee salmon and trout fishing) but nevertheless has some of the best bass fishing in the state. Lake Lillinonah, an impoundment of the Housatonic River, has more resident species of fish than any of our study lakes (even a thriving goldfish population) and typifies a riverine system. The largest lake in the state, Candlewood, hosts a dense alewife population, with lunger brown trout and pickerel competing with the bass for this food source. In the eastern part of the state, Pachaug Pond is a large, yet relatively shallow lake, famous for yield-

ing outsize bass. Moodus Reservoir is a "typical" Connecticut bass lake; shallow, weedy and turbid with abundant stick-ups and lily pads. Lastly, Pickerel Lake, right next door to Moodus, is the smallest of the study lakes (69 acres) representing the many small ponds that dot our state. More recently, we also began studying Lake Saltonstall, a water supply reservoir in Branford, which only last year was opened to limited fishing under a permit system and may therefore, hold an inordinate number of trophy size bass.

Electrofishing refers to any method of capture where an electric current in the water is used to immobilize the fish prior to their removal (usually with some type of net). Electrofishing is one of the only methods which will take bass in sufficient numbers and in a fairly random manner with respect to size of the fish. It is very important in any scientific study of animal populations that the animals collected are a representative cross-section of the entire population. Thus, we capture all sizes of bass, from young-of-the-year, barely an inch long, to pot-bellied "hawgs." Obviously, we catch a great deal more small bass than

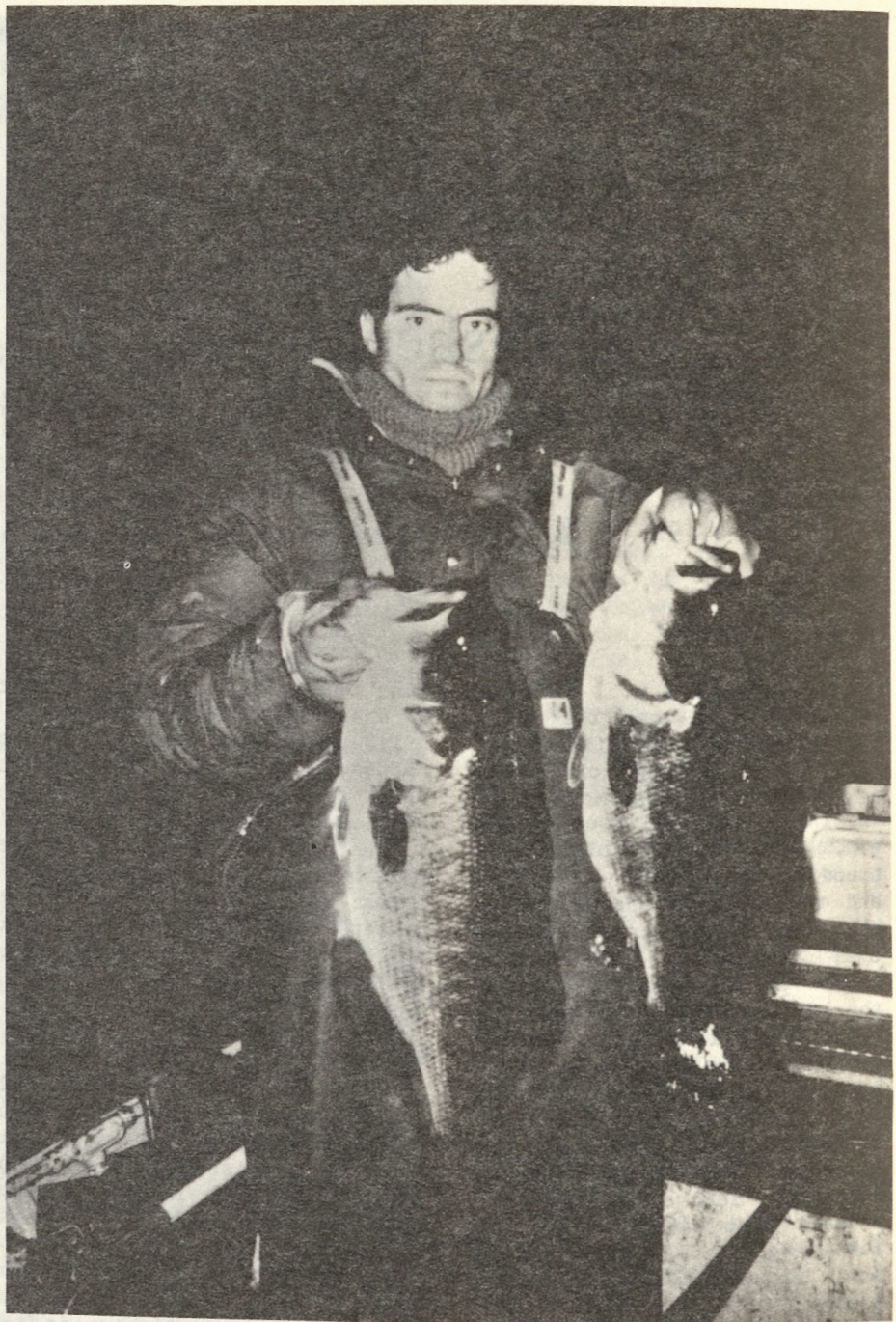


large ones because of their greater abundance in the population.

Our electrofishing rig consists of a 17-foot jonboat with two booms protruding from the bow much like antennae off an insect. Attached to these booms are an array of electrodes (steel cables) which dangle some six feet into the water. For those of you who understand electricity, the cables are the positive electrodes (or anodes) whereas the boat hull itself serves as the negative terminal (cathode). Two biologists stand on a platform on the bow of the boat and snatch stunned bass from the water with long-handled nets while a third biologist drives with an electric trolling motor. A 5000-watt gasoline generator (the monster's roar) powers a control box replete with impressive dials and gauges which pumps a current of up to 350 volts at 12 amps into the water. For this reason, the netters wear raingear, rubber gloves and boots and each stands on kill switches, either of which would stop the current if a foot was removed.

Why is it that the fish are not electrocuted by so much current? The main reason is that the amount of current that an animal in the water receives is proportional to its body surface area. Being relatively small, a fish's body thus receives very little of the total current output and is usually only immobilized for the short time that it's exposed to the electric field. Many of the bass we shock don't seem to have read the book on this, however, for the moment the juice hits them they shoot off for parts unknown. The rig poses little danger for curious onlookers since the electric field only extends a few feet ahead and to the sides of the boat, after which it quickly dissipates. It also seems to have very little or no effect on animals such as turtles, muskrats, crayfish and aquatic insects.

Bob Jacobs photos



"Hawgs" such as this pair from Pachaug Pond are usually 10 to 13 years of age.

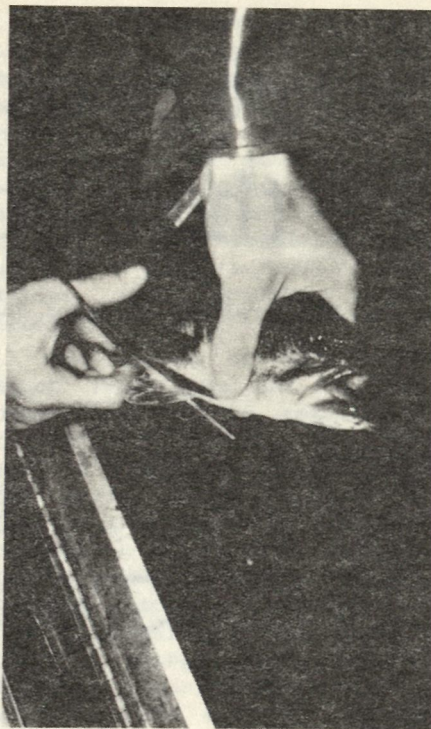
Each of our bass study lakes is sampled at least six times a year starting in May-June and again from September-November because the fish are in the shallow water at night during this time. Electrofishing for bass is generally best at night because the fish are relatively inactive after dark in the spring and fall and are more apt to be in shallow water, making them

less able to avoid our gear. Since our electrofishing rig is only effective in water less than eight feet deep (this is more limited by water clarity than anything else) bass tend to spook when approached during the daylight hours. They can not only see and hear us coming, but they can feel the electric current long before it is strong enough to affect them. At night, however, espe-



cially during the spring and fall when the water temperatures are relatively low, the fish spend a lot of time lying motionless on the bottom in a kind of half sleep and are fairly oblivious to our approach. The fact that we must conduct our sampling at night has not endeared us to some lakeside cottage owners, but we do try to stay away from populated areas after 9:00 p.m.

Once a bass is successfully netted it is placed in a live-well until enough fish are accumulated for processing. Bass are then measured, weighed, and a few scales are taken for age determination (fish lay down annual "rings" on their scales similar to those in the trunks of trees). The sex of the fish is then determined by gently inserting a small probe (actually a plastic broom straw) into the genital pore. In female bass, the straw will generally penetrate about an inch or more, whereas it usually cannot be inserted at all into a male. With a bit of experience and a gentle hand this method is both reliable and will not harm the fish. At this point the bass is sometimes marked by clipping off part of a fin. This clipped fin quickly regenerates, but a recognizable scar is retained by which a biologist can determine if the fish is a "recapture." With this type of information, we can statisti-



*In some lakes a fin is clipped in order to recognize recaptured fish.*

cally determine such things as the approximate numbers of fish in a lake and whether our gear is more prone to catch a certain size fish than another. All of the above procedures are usually completed in less than a minute, after which the fish is released and swims away unharmed. In Lake Saltonstall a special bass tagging program is under way where small yellow tags are being affixed just be-

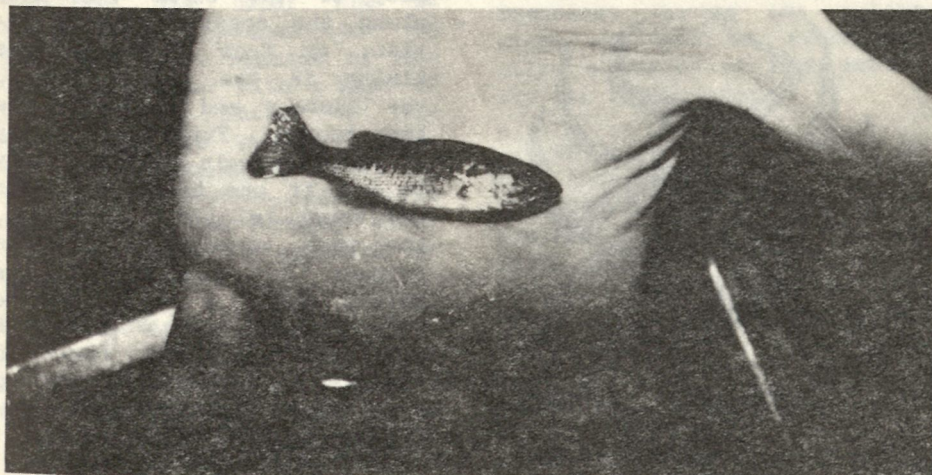
low the dorsal fin of legal size bass. Anglers are requested to place any recovered tags in a "tag return box" at the lake. Some of the tags bear a \$10 reward for anglers lucky enough to happen on them.

Nights tend to be long on the bass study. Sampling begins just after dark, and usually we see the sun before we see our beds. As with sport-fishermen, we have our good and bad nights. We average about 60 bass a night (our best was 261 in one night from Lake Lillinonah); however, some nights we can't buy a bass. Inclement weather conditions such as thunderstorms, high winds and, in November, ice and snow on our decks don't add to the ease of fish collection, but are all taken in stride.

Anglers often ask us what was the largest bass we've caught. The answer to date is a seven and one-half pounder from Moodus Reservoir. Most are surprised that we have not caught a larger one, but it must be remembered that we are not trying to catch big bass per se. The larger fish are caught in proportion to the smaller ones. Bass over six pounds are relatively rare in any population compared to the number of 10-inch fish. Sport-fishing for bass tends to give the angler a distorted view of the relative numbers of different size fish in a lake. There are actually a lot fewer "haws" and a lot more "throw backs" than you would think. In Connecticut lakes, a five to seven pound bass is almost always over 10, and sometimes as old as 15 years of age. Considering the amount of baits that must have whizzed by them in that time (and most have probably been caught and released several times), they are a pretty lucky minority.

Data acquired from this study will yield valuable information on such factors as growth, fishing mortality (the proportion of fish in a population removed by fishing each year), and natural mortality

To page 21  
11



*It is important to sample all sizes of fish in a stock assessment study. The numbers of young-of-the-year bass captured can yield information concerning future abundance of catchable size bass.*



# Nature Notes

## Crabs of the shoreline

Text and Illustrations by Penni Sharp

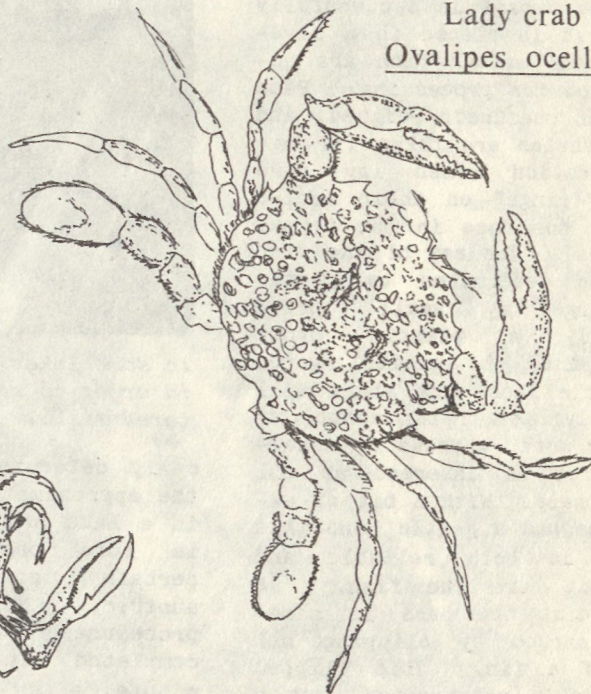
Blue crab

Callinectes sapidus



Lady crab

Ovalipes ocellatus



Fiddler crab

Uca sp.



One of the amenities of living in Connecticut is the accessibility of the coastline. For most people in Connecticut the shore is, at most, a few hours distant. At no time is this fact more appreciated than during a hot summer. Visitors, many of them from out-of-state, flock to the shore, and many communities located along the coast undergo a significant increase in population as summer draws near.

The coastline offers many things to many people. It can be a place to launch a boat, to acquire a tan, to take a swim, to play on a beach . . . and for those interested in the natural environment, a place that offers several unique habitats for observing a wide variety

of animal life. Whether the animals are visitors like many of the birds that stop along the coast during migration, or true marine animals living in the saline waters, the numbers and diversity are tremendous. Furthermore, many of these animals are quite easy to see if one knows how, when and where to look. Certainly, the rich variety of life is evident to anyone who has walked along a beach as the tide recedes. The shells of mollusks, bones of fish and feathers of birds are cast up with the seaweed and other things deposited by the water.



Common spider crab

Libinia emarginata

Of the marine animals, among the most entertaining to watch are the crabs. A good place to observe some species



of crabs is within a tide pool. Some however, inhabit deeper waters and are only seen if caught or if washed up upon a beach.

Crabs belong to the animal class Crustacea which includes shrimps, lobsters, barnacles, crabs, water fleas and many other small and microscopic animals. Crustaceans are found in many environments on land, sea, and fresh water; however, the great majority of species are marine. Most crustaceans are scavengers and feed on decaying organic matter. Some, for example the fiddler crabs (Uca spp.), are largely vegetarians.

One interesting attribute of the crustaceans is their ability to regenerate limbs. If in a fight one is forced to sacrifice a limb, no matter; a new one will eventually grow in its place.

Animals within this class have segmented bodies which are either divided into distinguishable parts or structured in such a way that the parts appear as one piece. The head is referred to as the cephalic portion, the mid-section the thorax, and the posterior part the abdomen. Sometimes head and thorax are fused together forming a cephalothorax. The stiff shell-like covering of the thorax is the carapace, and this part of the crustacean may "outlive" its owner and is often found washed up on beaches. Each segment of the body is equipped with a pair of appendages. Those of the thorax are the walking limbs. It is not unusual for one or more pairs of these legs to be modified for performing other functions such as swimming or grasping.

Crustaceans breathe by means of gills. These are generally located on the limbs or on the body wall adjacent to the legs in special chambers. Gills are structured so that as much surface area as possible is exposed to the water to increase the efficiency of oxygen absorption.

Other interesting body features are the eyes. Crustaceans have two kinds of eyes, simple and compound, the compound ones being made up of many eyes. In some species, the eyes are located on movable stalks. This allows the animal to see in all directions from above its body, a useful adaptation when predators lurk nearby.

The larvae of crustaceans hatch from eggs and in most cases bear little resemblance to the adult parents. In fact, many of the larvae, which spend the early phases of life as part of the plankton, were once thought to be distinct species. Larvae generally go through varying degrees of metamorphism before becoming adults. Crustaceans change and grow by shedding their skins and during the molt are particularly vulnerable. Prior to the molt, the hard exoskeleton loosens and becomes soft, while a new one forms underneath. The old shell splits open and the animal withdraws first its head and thorax and then its abdomen. Occasionally, crustaceans have difficulty extricating themselves from their old skins. At the time of shedding, the animals may grow very rapidly, sometimes as much as 25 percent of their original size. For about a week, normally pugnacious animals will rest quietly in a secluded spot while awaiting the return to normal. They are weak and defenseless during the molting stage and this is, understandably, a period of high mortality for crustaceans.

Of all the crustaceans, the most observable and therefore familiar are the members of the suborder Brachyura, the true crabs. Although most other crustaceans have long cylindrical bodies, true crabs have bodies as broad or broader than they are long. They have five pairs of walking legs; the first pair is larger than the others and is equipped with a set of pincers.

A number of species of true crabs can be observed along the

Connecticut coast. The common spider crab (Libinia emarginata) is probably familiar to anyone who has spent time at the shore. This crab does have a spider-like appearance with its spiny shell and long, jointed legs. The carapace of the common spider crab may reach up to four inches long and its legs span a foot in length. The shell is covered with small hooked hairs and is usually yellowish-brown in color. A row of nine spines is found along the median of its back and helps distinguish the common spider crab from other members of the family. It can be found all along the Connecticut coastline, especially on muddy bottoms.

Although spider crabs look somewhat ferocious, they are completely harmless. They are interesting to examine as they often inadvertently transport algae, sponges, gryozoans and other forms of marine life which become caught in the hairs of their shells.

Another crab common along the shoreline is the green crab, Carcinus maenas. It belongs to the family of swimming crabs (Portunidae), members of which have the last pair of legs adapted for swimming. For most species in this family, the end joints on the rear legs are oval-shaped and function effectively as paddles. The green crab is the one exception, and its hind legs are flattened with pointed tips. The crabs are greenish above; males and young are yellow beneath while females are red-orange. They grow to a size of up to three inches. Green crabs are readily observed in tide pools, and if one carefully lifts a stone, a green crab may scuttle out from beneath. They are found in many coastal areas of the world and can tolerate fairly low salinities.

Another crab of the same family is the blue crab, Callinectes sapidus. The blue crab is probably familiar to many because of its commercial



# Groundhog days

## Woodchucks in Connecticut

Wildlife Bureau Informational Series

### General

Woodchucks (*Marmota monax*), or groundhogs, are found extensively throughout Connecticut. They are classified as rodents and are related to such animals as mice, squirrels, porcupines, and beavers. Woodchucks are stocky animals with short legs. Other physical features include strong leg muscles and long, curved claws on the front feet which enable woodchucks to burrow.

Their fur ranges from light to dark brown in color with even lighter guard hairs, giving the animal a "frosted" appearance. The feet are dark brown to black. Adult woodchucks commonly weigh between five and 10 pounds depending on the time of year; the body is between 16 and 20 inches long with a six-inch furred tail. When alarmed, woodchucks make a whistling or a chattering sound.

### Habits

The woodchuck is one of the few mammals that go into true hibernation for four to five months. During this time, the heart, respiration, and overall metabolism rates are greatly reduced. The animal is nourished from the fat reserves it has built up the previous summer. They awake slowly from hibernation during February and March. Males usually awaken first and travel to nearby dens where females are hibernating. Mating occurs in the den and may be followed by further hibernation. A mated pair will

remain in the same den until the young are born in April or May. One litter of two to six helpless young are born per year. They are weaned and ready to seek their own dens at five to six weeks of age.

During the warmer months of the year, woodchucks are usually seen feeding near field edges or near garden areas. Early morning and late afternoon are preferred feeding times. Large quantities of succulent plants, including garden vegetables, are the woodchuck's favorite food. Tree buds, fruit, and insects may also be eaten. During the hot hours of mid-day, woodchucks can be seen sleeping in the sun on rocks or logs near the safety of the burrow entrance. Woodchucks cannot run fast and rely on their keen hearing and sense of smell to give them enough time to enter their burrows when danger is near. Woodchucks can be fierce fighters when cornered.

Burrows are usually located along fence rows or on field and woodland edges. They are about 25 to 30 feet long and from two to five feet deep and usually have at least two to three entrances. The main entrance is often the most conspicuous, having a large mound of freshly-dug dirt nearby. The other entrances are not as visible and are used for escape purposes. A nesting chamber for sleeping and raising the young is found at the end of the main tunnel; there is also a separate toilet chamber for sanitation of the burrow sys-

tem. Auxiliary burrow systems are also used on occasion.

Toward the end of the summer, as cooler weather begins, woodchucks increase their feeding activity. A good layer of fat is essential for a long hibernation. By the end of October, most woodchucks have begun their winter sleep in their nests made of dried grass and leaves located well below the frost line.

### Benefits

The abandoned burrows of woodchucks are used for den sites or escape cover by a variety of other wildlife including skunks, raccoons, foxes, rabbits, opossums, weasels, and snakes. Most of these animals help control many rodent and insect pests.

### Management of Nuisances

Woodchuck damage can usually be classified into three categories:

- 1) Most woodchuck damage complaints stem from feeding in farm fields and/or home gardens.
- 2) Burrow holes and dirt mounds make operation of farm equipment difficult in some areas.
- 3) Woodchucks sometimes gnaw or claw fruit and ornamental trees to wear down the winter growth of their teeth and sharpen their claws.





The most permanent method of controlling woodchucks, and other wildlife, in a garden situation is fencing. A sturdy fence at least three feet high will keep most medium-sized animals out. However, woodchucks may try to burrow under the fence. If this is the situation, the fence should be extended underground another one to two feet. Woodchucks have also been known to climb over fences, in which case a one-foot extension bent outward at a 90-degree angle should be added to the top of the fence.

In certain areas, woodchucks can be live-trapped and released in a suitable area five or more miles away to help solve the nuisance problem. However, this is only a temporary means of control. Animals removed will most likely be replaced in a short period of time if good habitat is present. To be most effective, live traps should be made of

metal (not wood) and be placed at the burrow entrance or near the area of damage. Bait the trap with apple slices or other fresh fruit. Trapping should not be done in the early spring when the helpless young are restricted to the burrow or in the late fall when the transplanted woodchuck may not have enough time to find a suitable den for winter hibernation.

Slow-burning toxic gas cartridges can be placed in the burrow when other control measures are not practical. Extreme care must be taken when using this method since other wildlife may be using woodchuck burrows and would be unnecessarily killed. Do not use gas cartridges near dry grass or buildings because of the fire hazard. Again, this is only a temporary solution since other woodchucks will eventually move into the area.

Woodchucks can be hunted most of the year with no daily

or seasonal limits; check the current hunting guide for periods when the season is closed.

Certain insecticides sprayed on garden vegetables (follow label instructions) may work as a repellent but these have had only limited success.

#### References and Further Reading

- Burt, W. H. and R. P. Grossenheider, A Field Guide to the Mammals. Houghton Mifflin Co., Boston, MA. 1976.
- Caslick, J. W. and D. J. Decker, Control of Wildlife Damage in the Home and Garden. Cornell Univ. Coop. Ext. Serv. Booklet. 1981.
- Harding, J., An Animal Damage Identification Guide for Massachusetts. Univ. of Mass. Coop. Ext. Serv. Booklet. 1979.



# Dr. Dennis' gift

## Dennis Hill State Park offers beautiful views

By John Waters

You probably won't be carrying tablets of stone when you descend from the 1,627-foot summit of Moses' Mountain in Dennis Hill State Park, but you certainly will be carrying memories of breath-taking panoramas of Mount Greylock in Massachusetts, the Green Mountains in Vermont, Haystack Mountain in Connecticut, and of Long Island Sound.

The same sweeping vistas thrilled President and Mrs. William Taft, New York Symphony conductor Walter Damrosch, philanthropist Andrew Carnegie, scientist Michael Pupin, the Mayo Brothers, and many other notable guests of famous New York surgeon Frederic Shepard Dennis early in this century.

When this beautiful 240 acre park in Norfolk was Dr. Dennis' summer place, a handsome bungalow called Tamarack Lodge perched on the extinct volcano that forms Moses' Mountain. Patterned after the eight-sided buildings in the wool markets of Wales, Tamarack Lodge had floor-to-ceiling windows and a huge galleried dining room. Part of the gallery's railing was a section of the old Yale Fence that once surrounded the campus. In September 1977, Tamarack Lodge Bungalow was accepted for inclusion in the National Register of Historic Places. Today, a victim of vandalism, the building no longer exists as a house. It is now merely an open-sided picnic shelter or pavilion consisting of a roof on the original stone piers.

### Nature Lover

Dr. Dennis was an ardent lover of nature. He imported trees and ferns from all over the world. In addition, at a cost of \$47,500 he planted 5,000 white pine seedlings and was delighted to learn, 15 years later, that their value had increased to \$100,000. He employed Yale and Harvard foresters to assist in his reforestation program. He also laid out many trails to scenic lookouts on the property.

### Ideal for Aged or Crippled

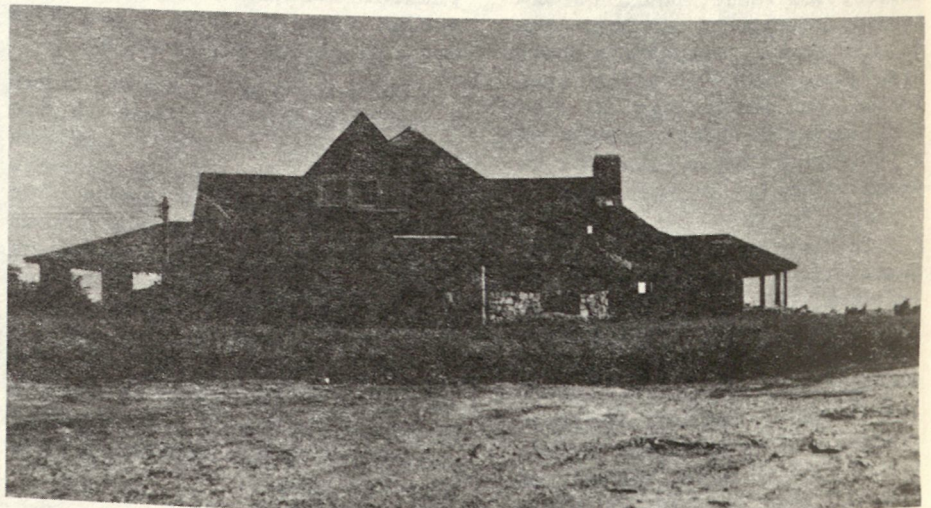
The State has owned the property, a gift from Dr. Dennis, since September 1934. It is on Route 272, two miles south of Norfolk. Because a motor road runs to the summit, crippled or elderly people do not need to leave their cars in order to enjoy the views and the foliage. Plane-spotters

used the summit all during World War II.

Two of the park's main attractions are the splendid show of mountain laurel in the spring and its brilliant foliage in the fall. The granitic rock at the summit is Becket Gneiss, the world's oldest type, and is derived from molten materials from far below the earth's crust. Its crystalline structure is the result of the grinding and polishing action of several glaciers.

Wildlife sighted in the park includes white-tailed deer, black bears, snowshoe and cottontail rabbits, giant flying squirrels, red and gray foxes, ruffed grouse, ground squirrels, and chipmunks.

Dennis Hill State Park is open to the public year round as conditions permit from 8:00 a.m. until sunset. There is no charge for admission. Parking capacity is 75 cars. ■



The bungalow at Dennis Hill in 1956.

DEP File photo



# DEP employees honored

William F. Miller, Director of the Office of Parks and Recreation, was the recipient of the Distinguished Managerial Service Award. Miller began his career with the State in

the summer of 1936 doing work as bath house attendant, parking attendant, all types of work in the refectory and restaurant, lifeguard, office clerk and assistant to the Ser-

vice Manager for the Park and Forest Commission, serving through the summer of 1942 when he entered the Air Force.

His next two years with Forest and Parks came as Head Clerk and Laborer, beginning in 1946 after Air Force service in the South Pacific. This stint involved construction, driving truck and bulldozer, survey crew and summer hiring and supervision of 100 seasonal employees at Hammonasset.

He was promoted to Park Service Manager in February of 1948, holding that position of supervision of cash receipts for all state parks for the next 12 years.

In 1960 he was promoted to the position of Western District Supervisor, with responsibility for 40 parks. From 1962-64, he served as District Supervisor with responsibility for directing the management of all shore parks; and from 1964 to 1971 he served as Superintendent of State Parks, directing the operation, development and maintenance of state parks and historic sites.

He was named to the post he now holds with the Department of Environmental Protection as Chief of Parks and Recreation in October of 1971.

Described by his nominator as "a resolute no-nonsense person who likes to get things done," he has played a key role in the development of the state's forest and park holdings. For example, "he was instrumental in the early 60's with the aid of the National Park Service" in the acquisi-



DEP Commissioner Stanley J. Pac congratulates Parks and Recreation Director William Miller on his management award.





Thomas O'Meara, Shikar-Safari International Award-winning Conservation Officer for 1983.

tion of Bluff Point State Park; began a program of recreating a sand dune system in the mid-60's, when it became apparent that "the structural integrity of the beach at Hammonasset was in jeopardy"; and was instrumental in developing group, off-season, and canoe camping, as well as hang gliding, snowmobiling and horse camping opportunities.

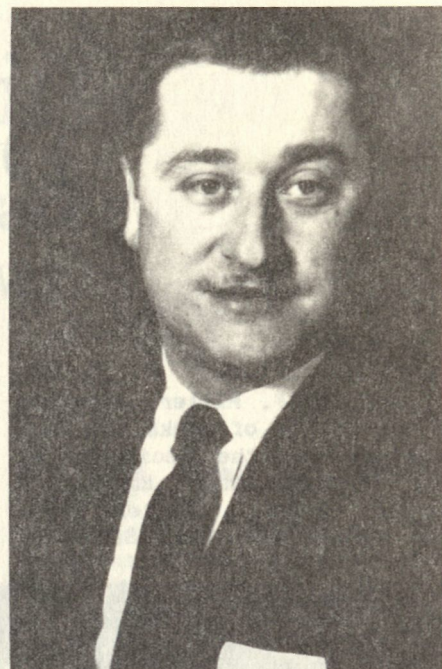
In addition, Miller and his wife Betty were the first in-residence supervisors of Camp Harkness and were responsible for initiating programs that accommodated handicapped individuals.

The reservation system he developed to permit residents to plan campground stays as early as January has been copied by three other New England states; and he began the emergency stopover program.

Long before the concept of combining agencies with similar interests became popular enough to create D.E.P., Miller was doing the very same thing. Although the agency title carried only the names of parks and forests, he put together people, equipment and materials of Fish and Wildlife offices to more effectively serve the citizens.

Conservation Officer Thomas O'Meara of Colchester has been named the Wildlife Officer of the Year for 1983 by the Department of Environmental Protection's Bureau of Law Enforcement. Colonel Thomas E. Bass of the Shikar Safari Club presented O'Meara with the Shikar Safari Club International Award for Wildlife Officer of the Year on March 23.

Criteria for selection as Wildlife Officer of the Year



Dr. Gustav Schlessinger, recipient of Water Pollution Control Operator Award.

include the officer's willingness to gain a well-rounded knowledge of the entire wildlife management field, his special contributions toward the conservation of the State's natural resources, and his efforts above and beyond normal work assignments of a Conservation Officer. One officer is selected each year by the DEP's Bureau of Law Enforcement from nominations from its District Law Enforcement Supervisors.

O'Meara, according to his supervisor, Conservation Sergeant John Overturf, "has been serving the citizens of Connecticut well, as a Conservation Officer, since 1973 and has never lost his enthusiastic spirit. He is a conscientious, dedicated, hard-working officer who has performed many services beyond those required by his position. He is not afraid to expend a little extra time and energy to achieve desired goals."

O'Meara, who is currently assigned to the Southeast Zone of DEP's Eastern District, was appointed Conservation Officer in November 1973. Prior to

To page 21



# Which way to the beach?

## CAM offers coastal map

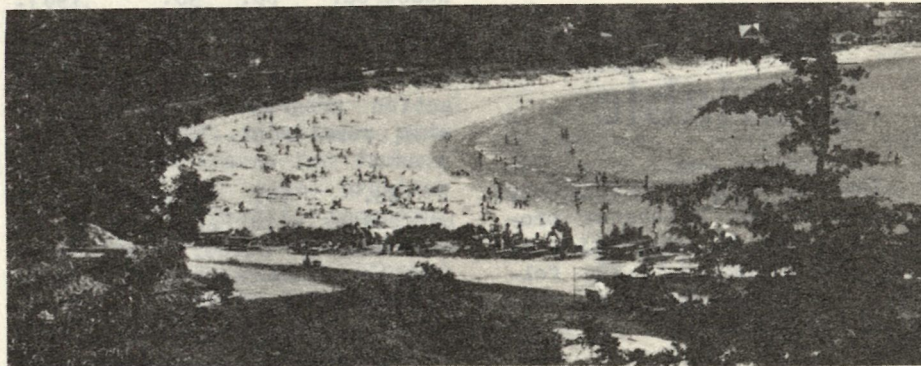
Diane Giampa, Public Participation Coordinator

Once again, summer is here and CAM's Connecticut Coastal Recreation Guide, Routes to the Shore, is being rereleased to help you locate and enjoy our state's parks, beaches and boat launches. The guide has roughly the same dimensions as a large road map and it folds to a size that fits conveniently into a car's glove compartment. The map shows the Connecticut coastal area only, and divides the shoreline into five enlarged insets, or "mini-maps" that highlight the southern border of the state from Route 95 to the water's edge. The major roads are clearly marked and easy to follow.

On the back of the guide is a large chart that lists the parks and beaches along the coast. A quick glance across any section of the chart will show whether a particular recreation spot offers a swimming area, boating ramp, fishing pier, athletic field, campground, picnic area and restrooms. There is also a short paragraph giving directions to each recreation area, and the guide provides additional information about entrance fees, telephone numbers and parking facilities.

The concept of the recreation map originated as a Coastal Management Special Project to increase public awareness of recreational opportunities

Art Rocque Jr photos

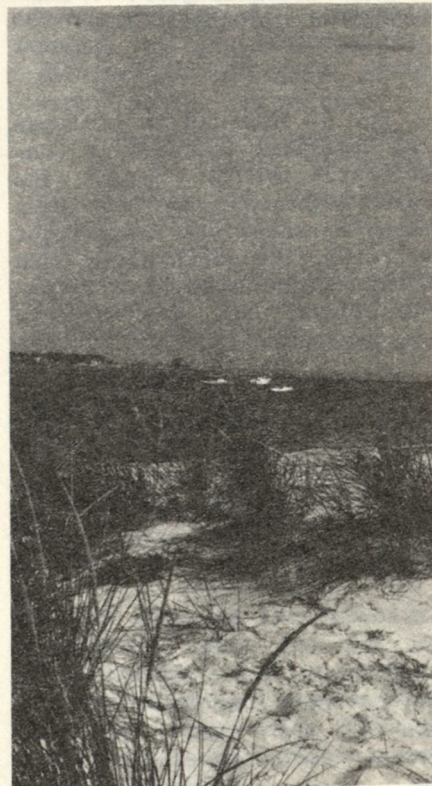


*Whether you prefer the bustling activity at one of Connecticut's state beaches, or a quiet walk away from the crowds, Routes to the Shore will help you enjoy the coast this summer.*

along the Connecticut shoreline, and it includes descriptions of and directions to about fifty state and municipal parks, beaches and boat launches. Many of you requested and received copies of the map when we announced its release last summer. But if you don't yet have your free copy, simply write to the CAM office or call us at 566-7114. ■



71 capitol avenue hartford, conn. 06106







By Leslie Bieber,  
Citizens' Participation Coordinator

## For Your Information

### Arboretum bulletins available

The bulletins published by the Connecticut Arboretum provide a wealth of information at a reasonable price. The following publications are currently available:

No. 7. "The Connecticut Arboretum: Its History and the Establishment of the Natural Area." pp. 16. 1952. .15

No. 9. "Six points of Especial Botanical Interest in Connecticut." pp. 32. 1956. The areas described are the Barn Island Marshes, the Connecticut Arboretum, the North Haven Sand Plains, Catlin Wood, the Cathedral Pines, and the Bigelow Pond Hemlocks. .40

No. 10. "Birds of the Connecticut Arboretum and the Connecticut College Campus." pp. 24. 1958. An annotated list with seasonal records and an account of the breeding bird census program. .40

No. 11. "A Roadside Crisis: The Use and Abuse of Herbicides." pp. 16. 1959. A proposed program for use of herbicides on town roads, to avoid present destructive practices. .10

No. 12. "Connecticut's Coastal Marshes: A Vanishing Resource." pp. 36. 1961. Testimony of various authorities as to the value of our tidal marshes and a suggested action program. 2nd program with supplement. 1966. .40

No. 14. "Creating New Landscapes with Herbicides -- A Homeowner's Guide." pp. 30. 1963. A how-to-do-it handbook describing the formulations and techniques to be used in eliminating unwanted plants such as poison ivy. The use of herbicides in naturalistic landscaping, wildlife and woodlot management are included. 1.00

No. 15. "The Flora of the Connecticut Arboretum." pp. 64. 1966. Includes annotated checklist of over 850 species and also article on vegetation of the Arboretum. 1.00

No. 16. "A Guided Tour of the Connecticut Arboretum." pp. 32. 1967. Reprinted 1974. Illustrated guide to the woody plant collections and dynamics of plant communities. .50

No. 17. "Preserving Our Freshwater Wetlands." pp. 52. 1970. Reprints of a series of articles on why this is important and how it can be done. 1.00

No. 18. "Seaweeds of the Connecticut Shore. A Wader's Guide." pp. 36. 1972. Illustrated guide to 60 different

algae with keys to their identification. Reprinted 1979. 1.50

No. 19. "Inland Wetland Plants of Connecticut." pp. 24. 1973. Some 40 species of plants found in marshes, swamps and bogs are illustrated. 1.00

No. 20. "Tidal Marsh Invertebrates of Connecticut." pp. 36. 1974. Descriptions and illustrations of over 40 species of mollusks, crustaceans, arachnids, and insects found on our tidal marshes. 1.25

No. 21. "Energy Conservation on the Home Grounds -- The Role of Naturalistic Landscaping." pp. 28. 1975. 1.00

No. 22. "Our Dynamic Tidal Marshes: Vegetation Changes as Revealed by Peat Analysis." pp. 12. 1976. .50

No. 23. "Plants and Animals of the Estuary." pp. 44. 1978. Descriptions and illustrations of over 70 estuarine species. 1.50

No. 24. "Garden Guide to Woody Plants: a Plant Handbook: Selection and Care of Woody Plants." pp. 100. 1979. Lists and descriptions of over 500 plants useful for landscaping. 2.50

No. 25. "Salt Marsh Plants of Connecticut." pp. 32. 1980. Illustrated guide to 22 different plants that grow in our tidal wetlands. 1.50

No. 26. "Recycling Mycelium: A Fermentation Byproduct Becomes an Organic Resource." pp. 32. 1981. Documents the beneficial role of industrial mycelial residues as soil amendments on ornamental plants and agricultural crops and in natural vegetation. 1.00

No. 27 "Birds of Connecticut Salt Marshes." pp. 48. 1981. Illustrations and descriptions of 24 birds commonly seen on our tidal marshes. 1.50

No. 28. "The Connecticut Arboretum: Its First Fifty



Years 1931-1981." pp. 56.  
1982. Historical accounts of  
the formation and growth of the  
Arboretum. 2.50

No. 29. "Mushrooms of New  
England." pp. 49. 1984. De-  
scriptions of 89 species of  
fungi, 62 illustrated. 2.50

"Checklist of Woody Plants  
of Connecticut Arboretum." pp.  
13. 1980. 1.00

Artistic map of Arboretum  
Showing Features and Trails.  
1.00

You can order the bulletins  
from The Connecticut Arboretum,  
Connecticut College, New Lon-  
don, Connecticut, 06320. In-  
clude .70 postage per publica-  
tion. ■

## Hypothermia

From page 2

7. Try to board a lifeboat,  
raft, or other floating plat-  
form or objects as soon as pos-  
sible in order to shorten your  
immersion time. Remember, you  
lose body heat many times fast-  
er in water than in air.

8. Keep a positive attitude  
about your survival and rescue.  
This will improve your chance  
of extending your survival  
time. Your WILL TO LIVE does  
make a difference. ■

## Sanctuary

From page 8

\* Thirty-eight camp sites  
at three camping areas of-  
fer "quiet camping," i.e.,  
water, fire places, pit  
toilets, no electricity.  
The forest, which is one of  
just two places in the  
state that offers horse  
camping, also offers 18  
sites that are reserved for  
horses and their riders.  
There's also a special  
youth group camping area.

\* The Pachaug Forest offers  
fishing at nine impound-

ments and seven lakes.  
Trout are stocked in all of  
the forest's streams,  
lakes, and impoundments.

\* Pachaug Forest has 35  
miles of blue-blazed hiking  
trails and about 50 miles  
of hiking trails alto-  
gether. There are also 30  
miles of roads, various of  
which are available for  
horseback riding, motoring,  
roadside picnics, etc.

\* The forest has a 60 mile  
motorcycle loop trail;  
route sheets are available  
from the New England Trail  
Riders Association, P.O.  
Box 501, Clinton, MA 01510.

\* In winter, 11 1/2 miles  
of snowmobile trails are  
available; call DEP Parks  
and Recreation for maps,  
566-2304.

\* Each fall 2,300 deer per-  
mits are issued for Pachaug  
Forest; it also provides  
squirrel, rabbit, raccoon,  
grouse, woodcock, duck, and  
fox hunting and is stocked  
with pheasants each hunting  
season.

\* There is swimming at a  
small beach at the Green  
Falls Recreation Area,  
which has parking for 100  
cars. There is also swim-  
ming at the Town of Volun-  
town's town beach on Beach  
Pond but no public parking.

\* The state-owned boat  
launch area on Beachdale  
Pond also includes a wheel-  
chair accessible fishing  
area.

\* There are picnic areas at  
Green Falls recreation  
area, Beachdale Pond, Mount  
Misery, Phillips Pond, and  
Porter Pond. ■

## Biologist

From page 11

(the proportion dying yearly of  
"natural causes"). From this  
information management recom-  
mendations will be made for

these and similar lakes which  
could range from no change at  
all to possibly a change in the  
minimum size limit of certain  
lakes. Some lakes may be  
experimentally deemed "trophy  
bass lakes" with restrictive  
creel and size limits. Whether  
any changes are actually made  
will be subject to various  
social and economic considera-  
tions such as angler attitudes  
and practicality of enforce-  
ment.

So, if you should happen to  
see a very bright and noisy  
boat prowling the waters of  
your favorite lake this summer,  
please don't throw stones . . .  
it's just your friendly neigh-  
borhood bass biologists un-  
dauntedly working toward the  
better understanding and man-  
agement of our state's fish  
resources. ■

## DEP Employees

From page 18

DEP's reorganization into the  
current districts, he was as-  
signed to a patrol area con-  
sisting of the towns of Nor-  
wich, Lisbon, and Sprague.

Dr. G. Gustav Schlessinger  
of Norwich has recently re-  
ceived, in Boston, the first  
Operator Award given by the New  
England Water Pollution Control  
Association in the wastewater  
field for Connecticut.

Schlessinger's citation is  
for "the recognition by your  
peers of the positive reputa-  
tion you have built via your  
commitment and dedication to  
the water pollution control ef-  
fort in New England."

Dr. Schlessinger is a  
Senior Chemist in the Water  
Compliance Unit of the State  
Department of Environmental  
Protection where he has been  
employed since 1973, and works  
with wastewater plants through-  
out Connecticut. ■



# Crabs

From page 13

importance. The soft-shell blue crab is highly prized as an edible, and millions of pounds are taken annually. It is a favorite of the weekend crabber as well. The blue crab is well adapted for swimming and has a streamlined body which is about twice as wide as it is long. It tapers at each side into a long, sharp spine. The last pair of legs on the blue crab are paddle-shaped. Its taxonomic name is very apt indeed, deriving from the Greek Callinectes, meaning beautiful swimmer, and the Latin sapidus, meaning savory.

A superficial glance at the blue crab may make some wonder at its common name, for its carapace varies from olive to dark blue-green. Examination of the claws, which are suffused with a bright cerulean blue, makes clear the reason for its name.

Blue crabs are found in the summertime along estuaries where they range into fresh water. In winter, they migrate to deeper waters.

Anyone who has crabbed for the blues knows that they are agile, aggressive creatures and can give a nasty pinch. Some feel that this is a small price to pay for such a delicacy.

One of the loveliest crabs to be seen is the lady crab (Ovalipes ocellatus), another member of the swimming crab family. Its delicately patterned carapace is often found on beaches, which is not surprising as the lady crab inhabits the sandy shore. Lady crabs have the ability to burrow into the sand and at low water mark these crabs bury themselves leaving only eyestalks and antennae exposed. From this position, they observe both prey and predators and will completely disappear when they sense danger. The speckled carapace,

paddle-shaped rear legs and five prominent spines on each side help distinguish lady crabs from others. In color, they are white with red or purplish round spots. Despite their delicate appearance, lady crabs are quite bad tempered and can inflict a painful pinch upon those who handle them carelessly.

Also grouped with true crabs and readily seen in Connecticut salt marshes are the fiddler crabs, Uca spp. Fiddler crabs congregate in large numbers, whereas other crabs in this suborder tend to be more solitary. They excavate small burrows in the mud either in the intertidal zone or above the reach of the tides. Numerous small holes in a salt marsh or the banks of estuaries are an indication of the presence of fiddler crabs. They are easily observed once their burrows are detected. Fiddlers are quite small, with a carapace of up to an inch and a half. Males have one claw greatly enlarged, while females have small claws of equal size. During courtship, males posture with their bodies and wave the large claw about. Fiddlers feed mainly on algae and decaying marsh plants. Marshes with large populations may seem alive with fiddler crabs. They will range over the marsh when the tide is out and, when alarmed, will retreat to their burrows running sideways, males holding the large claw aloft. They are interesting little creatures and pleasurable to observe.

If planning a visit to the shore this summer, be sure to allow some time to look for some of the interesting creatures that are found in Connecticut's coastal habitats. ■

## A-birding we will go

For those of you looking for spots which offer great

"birding", a book is available which should make the task easier. Twenty-five Birding Areas in Connecticut, by Noble S. Proctor (Pequot Press), is an invaluable source of information on where to find what.

Dr. Proctor is a nationally respected authority on birds, and we are lucky to have him as a professor at Southern Connecticut State University. He has spent many years studying the avian population of the state, making notes on where some of the more elusive birds are likely to be found.

The book begins with a map of the state with numbered dots representing the described areas. This will be helpful to someone interested in a particular geographic location. Individual sections include a map of the area, how to get there, and what the special attraction is. A very helpful feature is the seasonal rating; if you are planning on birding at a particular time of year you will appreciate this.

Dr. Proctor has included areas all over the state in his book. The majority are on the shore, but you will be able to find something within an hour's drive no matter where in Connecticut you live. Locations include Mianus Park in Greenwich, Lighthouse Point in New Haven, Bluff Point in Groton, and White Memorial Foundation in Litchfield. All are open to the public and fairly accessible.

Twenty-five Birding Areas is small and light enough to slip into a backpack (or a Christmas stocking if you are inclined to plan ahead) with no trouble. An index of species makes it easy for the reader to find a prime location for a particular bird. The text is also interspersed with black-and-white photos. At \$4.95, this book is a great buy for anyone who wants to know more about Connecticut's birds. ■



# Boaters -- know your bouys

By Frank Glista,  
Boating Safety Representative

Beginning in 1983 and continuing through 1989 a modification of the U.S. navigational aids system will be put into effect. The primary purpose of the changes is to improve safety by making the bouyage systems around the world alike. The change-over will be gradual, with completion scheduled in six years. It will be accomplished in the course of routine maintenance to reduce costs.

As a result of this activity and the elimination of many navigational aids in an economy move, boaters on Long Island Sound and our navigable rivers may find their charts very misleading. As modifications are made the changes will be published in the Local Notices of Marinas.

The principal changes are:

1. Side of channel markers approaching from seaward:

Port side aids are changed from black to green and bear odd numbers; if lighted, they carry green light only.

Starboard side aids are red and bear even numbers; if lighted they carry red light only.

2. Mid-channel and fairway buoys are changed from vertical black and white to vertical red and white. They bear no numbers but may be lettered. If lighted, there will be a red spherical top mark and the light will be flashing white (morse code A --). If unlighted, the buoy will be spherical.
3. Junction and obstruction buoys are changed from red and black to red and green. They

bear no numbers but may be lettered. If lighted and preferred channel is to starboard, the light will be green (composite group flashing green). If lighted and preferred channel is to port, the light will be red (composite group flashing red).

4. Special aids buoys will be yellow; if lighted, the light will be yellow.
5. Orange and white regulatory and information buoys are unchanged.

A U.S. Coast Guard pamphlet will be mailed to interested boatmen who apply to DEP Information and Education, 165 Capitol Avenue, Hartford, CT 06106. ■

## Family Outdoor Discovery Program

### JUNE

- 9 A Walk Along the Coast of Connecticut. Bluff Point Nature Center Preserve.
- 17 Animal Population in a Suburban Forest. Goodwin State Forest.
- 23 Boating in Connecticut for Beginners. Location to be announced.

### JULY

- 7 Canoeing Clinic. Goodwin State Forest.
- 14 Let's Look at a Bog: Photograph Clinic. Mohawk State Forest.
- 15 Habitat and Community: We Call Them Home. Goodwin State Forest.
- 28 Family Camping Experience. Location to be announced.

### AUGUST

- 11 The Salt Marsh. Barn Island Preserve.
- 19 Succession: The Ever-Changing Forest. Goodwin State Forest.
- 25 Environmental Theater. Location to be announced.

### SEPTEMBER

- 8 The Geology of Southington Mountain. Southington Mountain, Southington.
- 16 The Forest Hotel: From the Ground Up. Goodwin State Forest.
- 22 Family Camping Experience. Location to be announced.

### OCTOBER

- 6 Bird Migration. Bear Mountain.
- 13 Outdoor Leaders Skills Workshop. Gay City State Park.
- 21 Fall: Adaptations for Winter Survival. Goodwin State Forest.
- 27 Connecticut Indian Ways. Washington Depot.

### NOVEMBER

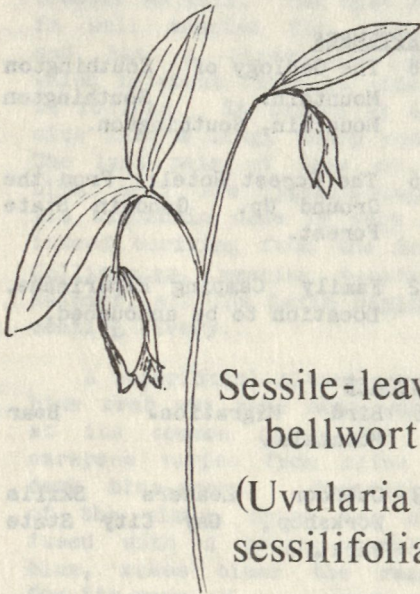
- 10 Mushrooms, Lichens & Mosses. Devils Hopyard.
- 17 Orienteering Clinic. Gay City State Park.
- 18 Nature's Organic Garden. Goodwin State Forest.
- 23 Friday Night Lecture Series. Goodwin State Forest.
- 24 The Oysters of Long Island Sound. Manchester Library.

The Information and Education Unit of the DEP sponsors Family Outdoor Discovery Program activities all year round. For more information, please contact the DEP at (203) 566-8108 or write to the Information and Education Unit, Department of Environmental Protection, State Office Building, Hartford, CT 06106. ■



# Trailside Botanizing

By G. Winston Carter



Sessile-leaved  
bellwort  
(*Uvularia  
sessilifolia*)

Lam Carter

This rather unobtrusive wildflower may be easily overlooked and at times confused is with the solomon seals.

It is often found growing on mid to lower slopes in moist woods where there is plenty of humus and where the soil is acid. Trout lilies and Jack-in-the-pulpit are sometimes associated plants.

The name bellwort refers to the flower which is somewhat bell-shaped. Little merrybells is a common name which is often used. The word "wort" means plant. *Sessilifolia* describes the way in which the leaf clasps the stem. The genus name, *Uvularia*, apparently originated because the Swedish botanist Linnaeus when naming this plant thought that the drooping flower looked like the uvula, which is the soft tissue that dangles down from the roof of the mouth at the back of the throat.

Sessile-leaved bellwort, a member of the lily family, blossoms from April to mid-June. The flower has three sepals which are yellow, unlike

the green of most sepals, and three yellow petals, giving the appearance of six yellow petals. When the sepals and the petals resemble each other, they are called tepals. The stem of the plant is angled, while the underground rootstock, or rhizome, is long and thin with a few scattered roots growing down from its underside. The fruit is a three-angled capsule. This plant may at times be found growing in dense mats.

Two other bellworts found in the northeast resemble the sessile-leaved bellwort. These are the large merrybells (*Uvularia grandiflora*) and perfoliate bellwort (*Uvularia perfoliata*). Both look somewhat similar although the large merrybells is, as the name implies, the bigger of the two. However, both have perfoliate leaves. This means that the stem appears to pierce the leaf.

All bellworts may be boiled and eaten like asparagus but should be picked only when they appear in abundance. ■

## DEP Citizens' Bulletin

State of Connecticut  
Department of Environmental Protection  
State Office Building  
Hartford, Connecticut 06106

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